

## CLAIMS:

1. A combination of a microphone requiring a bias signal and an analog-to-digital converter having an input connected to an output of the microphone, to convert a signal generated by the microphone into a digital signal at an output of the analog-to-digital converter, characterized in that the analog-to-digital converter is operable to supply a bias signal to the microphone.

2. A combination as claimed in claim 1 characterized in that the analog-to-digital converter is a sigma-delta converter comprising a loop filter, a sampler, a first feed-back circuit for AC signals, including a first digital-to-analog converter, and a second feedback circuit for DC signals, including a second digital-to-analog converter, the bias signal for the microphone being derived from the second feed-back circuit, and the first and the second feedback circuit both being coupled to an input of the loop filter.

3. A combination as claimed in claim 2, characterized in that the second feed-back circuit includes a low pass filter having a cut-off frequency lower than the lowest signal frequency of the analog-to-digital converter.

4. A combination as claimed in claim 2 or 3, characterized in that the gain of the second feed-back loop, which comprises the loop filter, the sampler and the second feed-back circuit, is several orders of magnitude higher than unity.

5. A combination as claimed in claim 3 or 4, characterized in that the low pass filter is a digital filter and is included in the second feed-back circuit before the second digital-to-analog converter.

6. A combination as claimed in claim 5, characterized in that the first and the second feed-back circuit are combined to a united feed-back circuit including a single digital-to-analog converter, having an input connected to a low-pass filter, and a bypass circuit which bypasses the low-pass filter.

7. A combination as claimed in claim 2, characterized in that the first integrator comprises a bridge circuit, whose branches include current sources, which bridge circuit has a first pair of opposite junctions is connected to a power supply, and has a second pair of 5 opposite junctions is connected to one another by a capacitor and the microphone, the junctions of said second pair each being connected to the inputs of the sampler circuit, and a pair of opposite current sources being controlled by the output signal of the feedback circuit.
8. A combination as claimed in claim 7, characterized in that the integrator 10 comprises a common mode amplifier having an output for driving control inputs of controllable current sources connected between the inputs of the sampler circuit and one of the power supply lines.

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